

Statement of Robert D. Jamison
Acting Administrator, Federal Railroad Administration
before
the Subcommittee on Railroads of the
Committee on Transportation and Infrastructure
U.S. House of Representatives
May 11, 2005

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to appear before you today, on behalf of Secretary Mineta, to discuss recent developments concerning Amtrak's Acela high-speed trains. I will explain what the Federal Railroad Administration (FRA) knows regarding the problems with the rotors on the Acela's disc brakes and how we are working with Amtrak to develop a solution to those problems. I will also touch briefly on FRA's overall safety priorities and Amtrak's general safety record.

Acela Brake Issues

FRA Safety Specialist Rich Thomas first detected cracks on the spokes of an Acela train's disc brake rotors on the evening of April 14. The detection occurred while FRA personnel were closely inspecting a trainset that had been involved in test runs. The test runs, unrelated to the brake issue, were being conducted to ensure safe operating performance of the Acela at higher speeds in curves than are currently permitted. While conducting a very thorough inspection of the brakes on the trainset, Specialist Thomas noticed what appeared to be rust near a very small mark on one of the rotor's spokes. On closer examination, the mark proved to be a crack. Cracks on the spokes of disc brake rotors have not been a common problem. Such an anomaly is very difficult to observe due to the location of the spokes in relation to other components of the undercarriage. Undercarriage components can obstruct a clear view of the spokes, especially on the two discs on the outside of the axle. (Acela trainsets have three discs per axle, which adds up to 72 discs per trainset.) After the initial discovery of the cracks, the FRA inspectors, along with personnel from Amtrak and its Acela maintenance contractor, then inspected other trainsets. As the inspections concluded that evening, it became clear that a significant percentage of the disc brakes had similar cracks. After discussions with FRA personnel that night, Amtrak decided to suspend Acela service immediately on April 15 and ordered a detailed inspection of the entire Acela fleet for the presence of such cracks.

The good news is that these cracks were detected before they led to a catastrophic failure of the rotor with potentially very serious consequences. Having been alerted to the problem, Amtrak then acted quickly to ensure that Acela service would not continue until the potentially hazardous condition was corrected. My staff and I met with Amtrak President David Gunn and his staff on April 15, and again on April 20, to discuss the problem and potential solutions. Amtrak formed a working group, consisting of its staff, its contractors who are responsible for Acela maintenance, the suppliers of the Acela equipment, and several technical experts, to determine the cause of the problem and to

explore solutions to the problem. FRA experts from our Office of Safety and our Office of Railroad Development are cooperating fully in that effort. Amtrak has no intention of running the Acela equipment with cracks in the disc brakes, and all concerned understand that FRA will not permit that to occur.

As to the cause of the cracks, there is much speculation. Some have speculated that one possible reason for the cracks in the discs is FRA's influence over the initial design of the Acela trainsets. In preparing to order high-speed trainsets in 1994, Amtrak sought FRA's comments on its proposed specifications. FRA's comments contributed to Amtrak's including certain design features, including crash energy management features similar to those being built into advanced European equipment during the period and strengthening the crew compartment. Amtrak specified that the trainset be built to comply with the North American standards for buff (anti-crush) strength because the trainset was intended to operate in a North American environment where all other passenger trains (both intercity and commuter) have been built to those standards and where rail freight equipment is much larger and heavier than that encountered in most other parts of the world. Amtrak did not seek permission from FRA to use the European buff-strength standard. Beyond such basic safety requirements, Amtrak and its vendor were free to choose technologies and to design the train as they thought best.

FRA's Safety Program

Our efforts to ensure the safety of the Acela service are but one component of a comprehensive railroad safety program. Although the railroad industry's overall safety record is very positive and most safety trends are moving in the right direction, very serious train accidents continue to occur, and the train accident rate has not declined at an acceptable pace in recent years. To meet these challenges, FRA is targeting its regulatory program on the most frequent causes of train accidents, focusing FRA's oversight and inspection resources on the areas of highest risk, and accelerating research and development (R&D) efforts that have the potential to mitigate the largest risks.

A. Targeting the Leading Causes of Train Accidents

More than 70 percent of all train accidents arise from either human error or defective track. Accordingly, FRA's highest priority must be to reduce these types of accidents.

1. Human Factors

Human factor accidents are now the largest category of train accidents, accounting for 40 percent of the total in 2004. FRA's ongoing analysis of accident trend data has revealed that a small number of particular kinds of human errors (e.g., not properly lining switches, failure to lock and latch switches, not properly conducting shoving movements) account for an inordinate number of human factor accidents. Although these matters are addressed by each railroad's own operating rules, FRA's regulations do not presently address them directly. FRA intends to take action, preferably based on consensus recommendations from its Railroad Safety Advisory Committee, to address these leading

causes of train accidents. We are acting in order to heighten awareness and understanding of the problem and ensure timely application of best practices across the board to achieve substantial reductions in these types of easily preventable accidents. We took a first step in this direction on April 14, by holding an industry symposium to exchange views on the causes and possible remedies for these human-factor accidents.

Important research projects are under way in support of, and to supplement, our regulatory efforts on human factors. We have signed a memorandum of agreement to launch a new FRA-sponsored R&D pilot project with rail management and labor that will gather and analyze data on “close calls” to identify the reasons for the human failures that cause near-accidents and to develop corrective actions to remedy those human-factor causes. Another FRA R&D project will try to develop cost-effective technological counter-measures to misaligned switches and will conduct in-depth behavioral research on why employees make such errors.

2. Defective Track

The second-leading cause of train accidents is defective track. Over the last three years, FRA embarked on an aggressive program to focus its track-related enforcement efforts on the most likely accident causes. We are continuing these efforts, which have generally helped move the track-caused accident trend lines in the right direction. Here, too, our R&D efforts provide a critical complement to our regulatory efforts. Broken joint bars and broken rails account for a large number of track-caused accidents, but the precursor conditions (cracks in joint bars and internal rail flaws) that lead to these causes are not readily detected. FRA is developing a high-speed photo inspection system that will detect joint bar defects much more efficiently than current methods allow. FRA is also working closely with the railroad industry to improve the speed and reliability of rail flaw detection vehicles.

B. National Inspection Plan

While our regulatory and research efforts are focused on the leading causes of train accidents, we are also focusing our inspection resources on the areas of highest risk. FRA has recently begun phasing in a new National Inspection Plan (NIP) to improve the agency’s allocation and assignment of inspection resources. The NIP will use sophisticated trend analyses of inspection and accident data to produce an optimal distribution of resources within each of the agency’s eight regions to minimize fatality, injury, and accident rates. We began implementing the NIP at the end of last month in the operating practices and track disciplines, which correspond to the two leading categories of train accidents.

C. Research and Development

Our third area of emphasis is accelerating our R&D efforts that have the greatest potential to reduce serious safety risks. For example, FRA is speeding up R&D efforts on the structural integrity of tank cars. FRA also continues use its R&D program to pursue new

approaches to passenger safety. These efforts are focused on strategies to better protect the occupied volume of passenger cars and to mitigate occupant injuries, as carried out through advanced computer modeling by The Volpe National Transportation Systems Center (Volpe Center) and through full-scale passenger car crash tests at the Technology Transportation Center near Pueblo, Colorado. Our research is focusing on applying the principles of Crash Energy Management (CEM) to the next generation of passenger cars. CEM seeks to protect occupants by dissipating collision forces through the use of crush-zones in the non-occupied volume of the vehicles.

Amtrak's Safety Record and FRA's Oversight

FRA closely monitors all aspects of Amtrak safety, as it does for all freight and passenger railroads. We inspect not just Amtrak's rolling equipment but also its track, signals, and operations. As with any other railroad, we use civil penalties and other enforcement tools when necessary to encourage compliance with our safety regulations.

Amtrak's safety record is generally quite good. Based on preliminary data for the year 2004, Amtrak's rate of accidents (2.8 per million train-miles) was well below the industry average of just over four accidents per million train-miles. Contrary to the industry trend, Amtrak's human-factor-caused accidents have fallen substantially in the last two years, comprising 20 percent of its accidents in 2004. One major reason for this improvement was a program that Amtrak adopted two years ago, with FRA's encouragement, to determine the root cause of major operating rule violations. In addition, employee injury rates, particularly in Amtrak's transportation department, improved in 2004. FRA will continue to monitor Amtrak very closely to ensure that its generally positive safety record does not deteriorate and that any safety problems FRA discovers are promptly addressed.

FRA's Continued Efforts to Ensure the Safety of Acela Operations

FRA, as mentioned previously, is working very closely with Amtrak as the railroad tries to develop a long-term solution to the Acela disc brake problem. We intend to make sure that the solution Amtrak adopts is one that fully cures the problem before Acela service resumes. Thus far, Amtrak has been in complete agreement with us on that issue. We will also ensure that Amtrak's equipment inspection program for the Acela trainsets is improved so as to ensure that any such safety-critical problems are found and corrected well before they reach the dimensions that this problem had reached by the time that FRA detected it. When the Acela service does start up again, FRA will resume its quarterly reviews of Acela mechanical issues with Amtrak. We have used this process in the past to resolve other problems detected in the Acela trainsets.

I believe that the extra effort displayed by FRA Safety Specialist Thomas and other FRA personnel involved in the current Acela brake issue may quite possibly have averted a serious accident. Those efforts are emblematic of the dedication that FRA employees generally bring to their safety mission. We will continue to exercise that level of effort in working with Amtrak to ensure that the resumption of Acela service is safely done. Thank you, and I would be pleased to answer any questions.